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A disability prevention programme for community-dwelling frail older persons

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This series of articles for rehabilitation in practice aims to cover a knowledge element of the rehabilitation medicine curriculum. Nevertheless they are intended to be of interest to a multidisciplinary audience. The competency addressed in this article is 'The trainee consistent demonstrates a knowledge of how evidence based methods and strategies can be incorporated in an integral and multidisciplinary programme for community-dwelling frail elderly.'

Abstract

Objective: To describe and justify a primary care interdisciplinary programme for community-dwelling frail older people aimed to prevent disability.

Background: Disability is a negative outcome of frailty among older persons. Policy reports and research studies emphasize the need for programmes to reduce disability progression. Between 2008 and 2010 we developed such a programme.

Development: Following the Intervention Mapping protocol, a research team and a multidisciplinary professional developed the programme. Literature reviews and an expert meeting led to identification of basic elements, theory-based methods and practical tools.

The programme: The general practitioner and the practice nurse comprise the core team that can be extended by other professionals such as occupational and physical therapist. The programme includes six steps: (1) screening, (2) assessment, (3) analysis and preliminary action plan, (4) agreement on an action plan, (5) execution of the action plan (toolbox parts) and (6) evaluation and follow-up. The main features are: identifying risks for developing disability and targeting risk factors using professional standards and the 5A Behavioural Change Model to support self management, and identifying problems in performing activities and enhancing meaningful activities based on the Model of Human Occupation. Screening,

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individual assessment, tailor-made and client-centred care, self-management support, case management and interdisciplinary cooperation are important principles in delivering the programme.

Discussion: The disability-prevention programme seems promising for addressing the needs of frail older people for independent living and for targeting risk factors. Its feasibility and effects are currently being tested in a randomized controlled trial.

Introduction

The rising number of frail older people poses various challenges for the public health care system.¹ Frail older persons are recognized as being at risk of adverse outcomes such as death, falls, hospitalization and institutionalization.² Disability, defined as experiencing difficulty in performing activities in any domain of life,³ is another negative outcome of frailty in older persons. Being independent and participating in society have great value for older people.⁴

Supporting older persons to live independently and participate in society are key policy targets for the Dutch government.⁵ Disability prevention for older persons, in contrast to disease prevention, has recently been addressed by the Dutch Health Council⁶ as function-oriented prevention. The Council emphasizes the necessity for development and evaluation of tailor-made interventions that focus on promoting independent functioning in daily life for (vulnerable) older persons with an important role for primary care, screening of vulnerable groups, and multidisciplinary cooperation.

Beswick and colleagues⁷ found that complex interventions like community-based care can support older people to live independently, though there is no clear evidence yet that one specific format is better than another. Various recent studies on proactive home visits for vulnerable groups of older people in the Netherlands, for example, showed conflicting results. These home visits by nurses did not turn out to be effective^{8,9} or only modest short-term positive effects were reported.¹⁰

A more powerful intervention in primary care is needed to address the needs of frail older persons and prevent or postpone further functional decline. Although the Dutch care system is characterized by its strong emphasis on primary care,¹¹ it still

seems insufficiently equipped to address the needs of frail older persons and to prevent disability.⁶ The overall reactive approach and lack of collaboration between disciplines^{6,12} poses challenges in implementing complex interventions.

Between 2008 and 2010 we developed an interdisciplinary primary care disability-prevention programme for frail older people. Between May 2009 and January 2010, a feasibility study was conducted.¹³ Further, we studied the validity of the postal screening instrument used in the programme to identify frail elderly.^{14,15} In March 2010, sponsored by the Dutch National Care for the Elderly Programme, a full evaluation of the effectiveness of the programme started.¹⁶ This article aims to describe and justify the programme based on our development work.

Justification of the programme—the theory

The development of the programme was based on the Intervention Mapping protocol¹⁷ for developing health promotion programmes. Two teams cooperated during development: a research team conducted (literature) studies and pilots to support decision making, and a multidisciplinary task group developed practical tools. The latter group consisted of professional experts such as a general practitioner, a nursing home physician, a geriatrician, a practice nurse, a geriatric clinical nurse specialist, a physical therapist, an occupational therapist, an expert in technology, and a researcher (RD) as the coordinator.

Defining frailty

Although there is still debate on the definition of frailty, agreement exists on the core feature of frailty: an increased vulnerability to stressors

due to impairments in multiple, interrelated systems that lead to decline in homeostatic reserve and resiliency.¹⁸ Some authors describe frailty from a physiological perspective,^{19–24} also referred to as physical frailty, while others consider frailty as multifactorial in nature, taking physical, psychological, social and environmental factors into account.²⁵

Literature on disability development in older people suggests that disability is multifactorial in nature. Stuck *et al.*²⁶ identified in their review the following risk factors for developing disability in community-dwelling older persons: cognitive impairment, depression, comorbidity, increased and decreased body mass index, lower extremity functional limitation, falls, low frequency of social contact, and low level of physical activity. Femia *et al.*²⁷ suggest that although disease conditions and physical impairments are as risk factors strongly related to an individual's functional abilities, other factors such as the beliefs about one's health (e.g. subjective health), motivation and self-efficacy are potentially as important.

With disability prevention as the main aim, a multifactorial approach to frailty was in our opinion a more promising approach in identifying and supporting community-dwelling frail older persons dealing with multiple diseases, problems and risks. As a consequence, the programme takes a multifactorial perspective on screening, assessment and treatment. As we consider frailty and disability as overlapping but distinct concepts, the programme needs to address the needs of frail elderly in different stages from mildly frail (without disabilities) to severely frail.

Programme outcome and goals

The overall desired outcome of the programme is that frail older people can do those activities they need to do or enjoy doing. As the programme intends to be preventive in nature, two ways of supporting performance of activities were formulated:

- Identifying risks (as described by Stuck *et al.*²⁶) for developing disability and targeting risk

factors. Targets could be focused on cognitive impairment, depression, comorbidity, increased and decreased body mass index, lower extremity functional limitation, falls, low frequency of social contact, or low level of physical activity.

- Identifying problems in performing activities and enhancing meaningful activities. The Model of Human Occupation²⁸ describes determinants influencing performance of activities. The model was successfully used in previous effect studies.^{29,30} Goals could be focused on determinants such as personal causation (including self-efficacy), values, interests, roles, habits, performance capacity (mental and physical functions), skills (motor, cognitive, communicative), and the physical and social environment.

Delivery of the programme

Our literature review³¹ on interventions aimed at disability prevention in community-dwelling frail older persons concluded that a tailor-made, multidisciplinary and multifactorial approach, individualized assessment and intervention, physical activity, assistive technology, case management and long-term follow-up are promising elements for a disability-prevention programme. During an expert meeting (with 16 researchers in elderly care), experts recognized similar factors as self-management, a tailor-made and client-centred approach, involvement of the client system, and case management as relevant. Our programme elements are presented in Table 1.

Tailor-made care and self-management support. There is a strong body of evidence that self-management support, using a mixture of components, is effective in improving clinical outcomes.³² The 5A Behavioural Change Model^{32,33} combines a client-centred approach, a model for behavioural change (Stages of Change model³⁴) and motivational interviewing techniques³⁵ to provide practical tools for professionals to support self-management. Rubak and colleagues³⁶ reported that motivational interviewing outperforms traditional advice.

Table 1. Elements of the disability-prevention programme

General	Process	Intervention
<ul style="list-style-type: none"> • Disease and function-oriented prevention • Tailor-made • Client-centred • Supporting self-management • Multifactorial approach to frailty • Multidisciplinary cooperation 	<ul style="list-style-type: none"> • Screening • Assessment • Case management • Involvement of the client system • Multifactorial and flexible toolbox of interventions • Long-term follow-up 	<p>Determinants: Risk factor for developing disabilities, e.g.</p> <ul style="list-style-type: none"> • Falls • Mood problems • Lack of physical activity <p>Determinants: Enhancing performance of meaningful activities</p> <ul style="list-style-type: none"> • Performance components (physical and mental functions) • Personal causation • Values • Interests • Roles • Habits • Skills • Social environment • Physical environment (e.g. assistive technology)

The '5 As' refer to assessing the older person's level of behaviour, beliefs and motivation for change; advice adapted to the need for information; agreeing with the older person on a realistic set of goals and actions (goal setting and action planning); assisting to anticipate barriers and to increase skills; and arranging follow-up support.³²

Use of the 5A Behavioural Model implies that goals and strategies to achieve the goals are individually determined and will depend strongly on the older persons' (self-perceived) problems, motivation, and capabilities. Self-management skills of the older person will influence whether goals are focused on the client or more on (support of) the social and physical environment.

Meaningful activities. As the programme aims to support older persons in continuing to do those activities they enjoy or need to do, meaningful activities had to be at the core of the programme. The Occupational Performance Process Model³⁷ was helpful in understanding that professionals need to explore concerns or problems of older persons with performance of activities, understand the older person's priorities and use meaningful activities, where possible, as

outcomes and means. The experience of doing can increase insight and beliefs in one's own capabilities (self-efficacy),²⁸ which is central to self-management. Graff *et al.*³⁰ showed the effectiveness of a focus on meaningful activities in a programme for older persons with dementia.

Interdisciplinary cooperation. Besides having relevant clinical components, care programmes should also be seen as multidisciplinary protocols that encompass tasks, decision criteria, and work procedures for the care professionals involved.³⁸ Studies into team collaboration in rehabilitation^{39,40} show that a common care philosophy, defined roles, open and clear communication, regular structural communication, shared decision making and goal setting enhance team cooperation.

Delivering the programme—the practice

The general practitioner and the practice nurse comprised the core team of the programme with the practice nurse in the role of case manager. This team can be extended to include the occupational

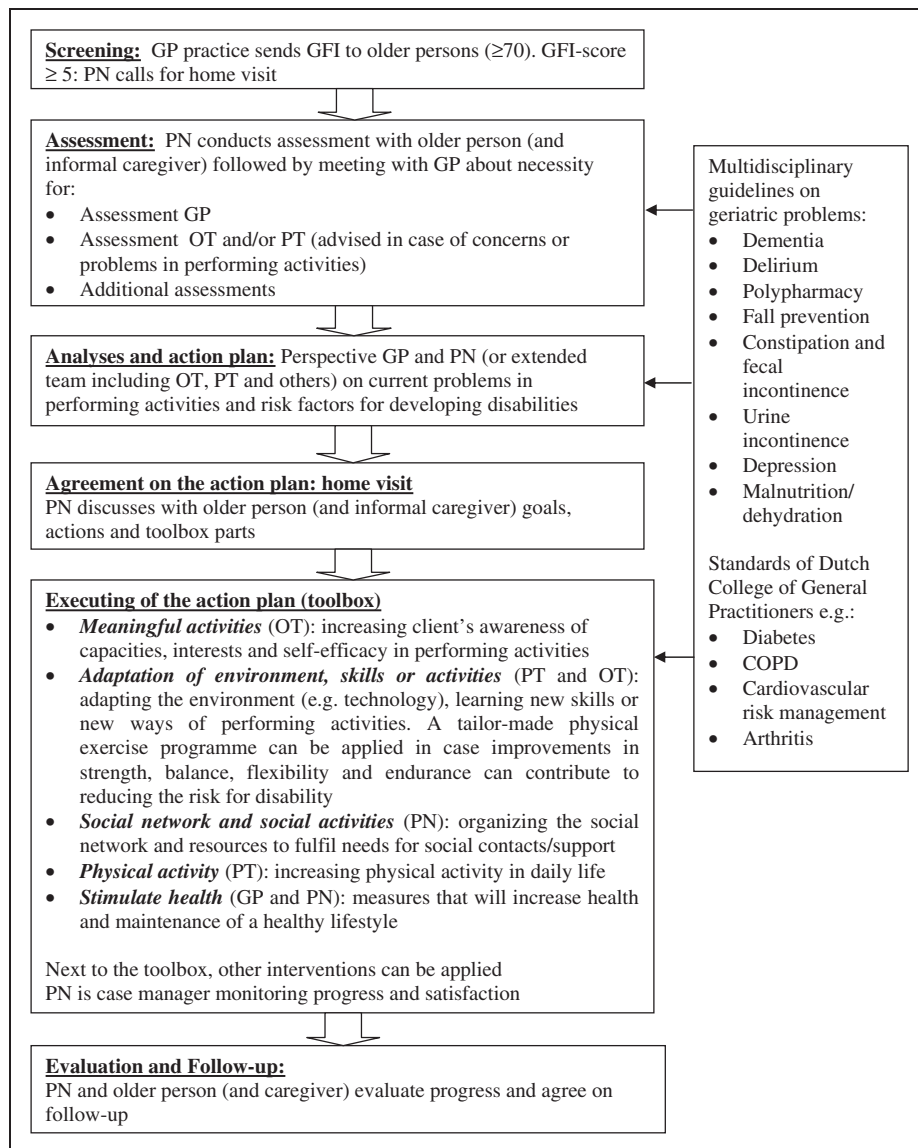


Figure 1. Steps of the programme. GP, general practitioner; GFI, Groningen Frailty Indicator; PN, practice nurse; OT, occupational therapist; PT, physiotherapist.

therapist and the physical therapist, other community care professionals or hospital professionals. The programme consists of six steps (Figure 1¹⁶).

Step 1: Screening for frailty

The Groningen Frailty Indicator (see Appendix 1 online) accompanied by a covering letter from

the general practice is sent to their population aged 70 or older. The Groningen Frailty Indicator⁴¹ is a 15-item screening instrument for determining the level of frailty. It focuses on the loss of functions and resources in four domains of functioning: physical (nine items), cognitive (one item), social (three items) and psychological (two items). Scores on the Groningen

Frailty Indicator range from 0 to 15. The instrument has shown high internal consistency and construct validity.^{41,42} In our feasibility study¹³ among 41 elderly persons, nearly all participating elderly were willing to return the Groningen Frailty Indicator by post (90% response), and the number of missing items was low. The study into predictive values of three postal screening instruments¹⁵ showed that all three instruments, including the Groningen Frailty Indicator, do have potential to identify older persons at risk, but their predictive power is not yet sufficient. A substantial proportion of elderly identified as frail by the Groningen Frailty Indicator did not develop adverse outcomes at one-year follow-up. In practice, this implies that additional information is needed to lower the number of false positives.

Step 2: Assessment

In the programme elderly with scores ≥ 5 on the Groningen Frailty Indicator are considered to be frail and are contacted by phone by the practice nurse to plan a home visit. During this visit a multidimensional assessment is conducted by the practice nurse in the presence of the main informal caregiver (if available). This assessment focuses on:

- concerns and wishes expressed by the older person and informal caregiver;
- risk factors for disability (based on Stuck *et al.*²⁶), such as polypharmacy, mobility problems, falls, lack of physical activity, cognitive impairments, or mood problems;
- problems or concerns experienced in performing activities;
- readiness to change.

A structured assessment format is used, based on various tools derived from instruments that have proven their use in previous research (e.g. the 'Easy-Care assessment'⁴³). To optimize multidisciplinary communication, the format matches the structure of the electronic patient records of the geriatric department of the regional hospital.

Throughout the assessment, the practice nurse uses motivational interviewing

techniques³⁵ to enhance collaborative partnership. Motivational interviewing focuses on providing opportunities to help patients assess for themselves what might be important or possible and how change might be achieved.³⁵ Reflective listening (accurately understanding a patient's story through open questions, reflections, gentle probing for more details and use of summaries) is a key element for the practice nurse in conducting the multidimensional assessment. The Stages of Change model³⁴ is used in monitoring the readiness to change.

The stages of change are:

- *Precontemplation*: not yet acknowledging that there is a problem that needs to be changed
- *Contemplation*: acknowledging that there is a problem but not yet ready or sure of wanting to make a change
- *Preparation*: getting ready to change
- *Action*: changing behaviour
- *Maintenance*: maintaining the behaviour change
- *Relapse*: returning to older behaviours and abandoning the new changes.

An example

In answering the practice nurse's question about fall incidents, an older person tells that she recently fell three times, expresses her concern with these incidents, but doesn't seem to know what to change to improve the situation. The practice nurse concludes that, concerning fall incidents, the older person is in a contemplation phase ready to move to a preparation phase to receive information about possible actions to prevent falling.

At the end of the meeting, the practice nurse summarizes the answers of the older person (and informal caregiver) and validates outcomes by asking:

- 'Could you tell me once more what are important activities for you to keep doing?'

- ‘What would you say could support you in keep doing those activities as long as you wish?’
- ‘How motivated are you to take measures that will help you to keep doing those activities?’

Practice nurses were told to use the assessment in a flexible manner and to focus on understanding the story of the older person and not on problem-solving. The feasibility study¹³ showed that the assessment takes approximately one hour followed by half an hour of administration. The elderly were very positive about the opportunity to share their story and regarded the questions in the assessment as relevant. Although professionals considered the assessment to contain sufficient items about activities, doubt was expressed about whether the older persons were sufficiently challenged to reflect on their patterns of activities in the context of well-being and health. It is not usual for elderly to express their problems and concerns in terms of activities, and more tools for professionals to discuss these kind of issues with elderly might be necessary.

Following assessment, the practice nurse and the general practitioner discuss whether additional assessments were needed. In the case of problems or concerns about performing activities, a referral to the occupational therapist and physical therapist for an assessment is recommended to gain a better understanding of the underlying causes of problems experienced. Additional assessments by other specialized professionals follow if needed (and if agreed on by the older person).

Step 3: Analysis and preliminary action plan

As complex care needs may arise, thorough analyses of data available from assessments is necessary before action takes place. The general practitioner and practice nurse discuss whether they could do the analysis and formulate a preliminary action plan together or whether the team has to be extended to include occupational therapist and/or physical therapist and, other disciplines. In the case of an extended team, the professionals hold a team meeting using a format based on the Model of Human Occupation.²⁸

The older person and the informal caregiver can be invited to the team meeting.

The meeting takes a top-down approach towards analyses. After summarizing the older person's background and context, the team identifies the activities meaningful to this person, the problems or concerns the older person expressed in performing activities, and the risk factors for developing disabilities. This is followed by analyses in which concepts as personal causation (including self-efficacy), values, interests, roles, habits, performance capacity (mental and physical functions), skills (motor, cognitive, communicative), and the physical and social environment are taken into account.

After analyses, the team focuses on two questions:

- How can we support the older person to keep doing those activities that are meaningful?
- How can we support the older person to reduce the risk of developing disabilities in the near future?

The protocol offers specific information on a number of geriatric problems (e.g. dementia, falls, depression, incontinence) based on recent standards and guidelines that professionals can use in their deliberations (see also Figure 1¹⁶). The best course of action is discussed in the context of the older person's needs, readiness for change and burden.

An example

A team meeting could result in several goals and actions:

- Lowering the risk of developing disability using measures such as:
 - polypharmacy: takes measures to increase safe use of medication (toolbox Stimulate health);
 - physical activity: increases physical activity in daily life (toolbox Physical activity)

- falls: takes measures to reduce fall risks (toolbox Adapting the environment, skills, or activities).
- Enhancing performance of (meaningful) activities such as:
 - older person wishes to continue working in the garden: physical environment: uses aids and adaptations to facilitate performance of activities (toolbox Adapting the environment, skills, or activities)
 - older person wishes to do meaningful activities in the weekend: interests: is able to explore interests and to choose for and perform meaningful activities (toolbox Meaningful activities).

During development of the programme, some professionals, especially general practitioners, were reluctant towards these team meetings. The feasibility study showed some constraints in organizing the meetings in one general practice. The 12 general practices in the randomized controlled trial, however, did not report problems with organization so far. Interdisciplinary meetings usually took one hour in which 3 or 4 older persons were discussed. Professionals experienced several advantages of this team collaboration, such as a more extensive picture of the older persons, sharing a mutual view on treatment, and a better understanding of the expertise of other disciplines. The feasibility study showed that education and guidance of teams may be important factors in achieving effective team collaboration.

Step 4: Agreement on action plan

The next phase relates to goal setting and action planning together with the older person (and informal caregiver). During a second home visit, the practice nurse explains that she would like to talk about measures to support the older person to keep doing meaningful activities. The practice nurse uses the motivational interviewing tool 'Agenda setting' to raise issues considered important by the older person, the informal

caregiver and the team. In agenda setting, rather than impose the professionals' priority on patients, one conducts an overview by inviting patients to select an issue or behaviour that they are most ready and able to tackle, feeling free also to express one's own views.³⁵

An example

Using the tool 'Agenda setting' the practice nurse asks: 'Is there some other topic that you would prefer to talk about? I'd like to talk at some point about your fear of falling and your wish to keep doing gardening. But, what makes sense to you right now?'

After an agenda has been set, the older person's topics are discussed, followed by the topics of the practice nurse. Information and advice adapted to the needs of the older person (e.g. about possible treatment options) is given after permission has been asked. Further, the practice nurse can use motivational interviewing techniques such as 'reflecting on pros and cons of change' (with the decision balance tool) and 'assessing importance and confidence in change' (with the importance-confidence ruler; see Appendix 2 online).

The outcome of this meeting is a list of goals, actions and responsibilities that should meet the older person's and informal caregiver's needs. It is important for practice nurses to make time for this meeting, and do this as a face-to-face interaction and not over the phone. The practice nurse needs to involve the older person in decision making, and goals of treatment should be specific so that they motivate and direct a person's attention toward goal-relevant activities. It is not important that all issues seen as important by the team are negotiated. The setting of goals and actions is a part of a process in which professionals and clients establish a cooperation, in which a learning process begins, leading to new insights and possibly to new goals and actions. Practice nurses in the feasibility study experienced that

goal setting in this programme differs from goal setting with clients with chronic obstructive pulmonary disease (COPD) or diabetes. They reported that client goals in our programme range further in scope and are less pre-described.

Step 5: Executing the action plan

A flexible toolbox of interventions is available to execute the action plan. For each toolbox part, a rationale and method are described to guide professionals. The toolbox exists of five parts:

Meaningful activities (occupational therapist). This part of the toolbox is meant for older persons who lack confidence in capabilities or experience a lack in activities that they enjoy or that give meaning to life. The objective is to explore capacities, interests and satisfaction with meaningful activities and ability to choose and perform meaningful activities. The method is based on occupational therapy literature,²⁸ motivational interviewing³⁵ and the Stages of Change model³⁴ (see Box 1 online).

Adapting the environment, activities or skills (occupational and physical therapist). This module is for older persons who experience problems in performance of activities. The objective is to adapt the environment, activities or skills to enhance performance of activities. The method is based on standards and guidelines in occupational and physical therapy for advising assistive technology and strategy training. A functional exercise programme (based on Gill *et al.*⁴⁴) focusing on physical parameters such as strength, balance, endurance and flexibility is also part of this module.

Social network and social activities (practice nurse). This part of the toolbox is for older persons with a small or unstable network, without sufficient support from their network, experiencing tension in their social network or loneliness. The objective is to strengthen the social network and/or increase social activities.

The method is based on the Dutch 'Strengthening your network' programme, as described by Hofman *et al.*⁴⁵ and the 'Friendship course' by Stevens *et al.*⁴⁶ Increased insight into one's network and wishes in relation to the social network are translated into goals and an action plan.

Daily physical activity (physical therapist). This part is meant for older persons aiming to increase daily physical activity. The method is based on motivational interviewing, the Stages of Change model and the seven-step approach as described by Resnick *et al.*⁴⁷ (see Box 2 online).

Stimulate health (general practitioner and practice nurse). This module is for older persons with chronic diseases or other risk factors for developing disabilities related to lifestyle. The objective is to take measures that stimulate health and a healthy lifestyle based on standards of the Dutch College of General Practitioners. In case of behavioural change, the general practitioner and practice nurse use motivational interviewing and the Stages of Change model to guide the older person.

During execution of the toolbox parts, the case manager (practice nurse) keeps in touch with the older person and the informal caregiver to monitor progress and satisfaction.

The feasibility study¹³ showed that professionals considered this toolbox appropriate for targeting frail elderly. The methods in the toolbox required the professionals to adapt. They had to change their focus from problem-solving to support the client's self-management and increase their own coaching skills.

Step 6: Evaluation and follow-up

After finishing parts of the toolbox, the practice nurse evaluates, as case manager, with the older person, the achievement of goals, the implementation of strategies in daily life and the need for support in the following period. This support

could be arranged, for example, through regular visits, telephone, email or community-based facilities. The professionals involved will be informed about the agreements. It is possible, for example, that an older person who was involved in the toolbox part 'Physical activity' still has a monthly telephone contact with the physical therapist to support the maintenance of new habits.

From the perspective of behavioural change, follow-up is a relevant phase. As a result of events and transitions, frail elderly persons can have difficulty in maintaining self-management strategies. In the feasibility study, arranging the follow-up was one of the elements that was often not applied. Arranging a follow-up is a rather new element in primary care; it is not in the process of usual care and usually there is no reimbursement for it. A good system is needed to organize who is responsible, for what, in which period. This needs more attention in the programme.

Discussion

This paper describes the content of a disability-prevention programme for community-dwelling frail older persons. The programme was designed to promote self-management in a tailor-made way using motivational interviewing and meaningful activities as a vehicle to guide behavioural change. Literature studies provided relevant elements in delivering the programme. To shape the programme, the research team and the multidisciplinary task group used theories, models and tools that have proven their usefulness in other contexts. How this combination works out in the context of community care targeted at frail older persons is still unclear. Bodenheimer and Grumbach,³² for instance, emphasizes that, although there is a strong body of evidence that self-management support is effective in achieving clinical outcomes, much work is still needed on precisely which activities are the most effective for which patients. Jonker *et al.*⁴⁸ found in their review that a group-based Chronic Disease Self Management

Programme for vulnerable older persons (containing goal setting and action planning) was consistently beneficial for health behaviour, especially with regard to the variables of exercise and self-care. How effective self-management support is in an individual format in community-dwelling frail older persons is a question for further studies.

The combination of elements, theories, models and tools has led to a complex intervention. New elements such as screening, motivational interviewing, meaningful activities in the core, team meetings and a toolbox of interventions might be too ambitious for the average general practitioner's surgery. The feasibility study showed that the screening procedure needs reconsideration and that additional tools for professionals to support self-management seem necessary.

Clinical messages

- In developing a programme for frail older people, the chosen definition of frailty will have an impact on the criteria for the target group, screening instruments, assessments and features of the intervention.
- Considering the complexity of disability-prevention for frail older persons, a multi-disciplinary and systematic approach towards the development of programmes is needed.

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Authors' contributions

All authors have been involved in the development of the disability-prevention programme and in writing the article.

Conflict of interest

The authors have stated that there are none.

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